

Abstinence Education Correlates with Sex Guilt and Sexual Attitudes and Behavior

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Abstract

Sex education for children and teens is of great concern not only to parents and religious officials but also to national health advocates due to the high rate of unplanned pregnancy and sexually transmitted disease prevalence in this population. In the present study, formal and informal sex education including “safe sex”/ contraceptive teaching only, abstinence-only, and abstinence-plus “safe sex” education were examined to determine correlates with sex guilt and specific sexual attitudes and behaviors including communication with sexual partner(s), sexual satisfaction, and contraceptive use at present and at time of first intercourse. Retrospective questionnaires were given to 171 male and female participants and the participants were asked to reveal past and present sex education experiences, sexual activities and behaviors, and sexual attitudes. Familial and partner relationships as well as sex guilt were also examined. Abstinence education, a component of certain sex education programs that promote virginity until marriage but generally ignore the safety precautions of sexual relations if sexual activity begins prior to that time, positively correlated with overall sex guilt and communication with sexual partners about pregnancy and negatively correlated with contraceptive use communication with sexual partners about contraception. No correlations were found between sex education and sexual satisfaction.

Abstinence education correlates with sex guilt and sexual attitudes and behavior

In the United States, over half of all teens between the ages of 15 and 19 are sexually active (Bennet & Assefi, 2005). American teens have also consistently been shown to use contraception less frequently than teens from other western industrialized nations (Cooksey, Rindfuss, & Guilkey, 1996). This finding is of great concern not only to parents, educators, and religious officials but also to national health advocates due to the presence of teen pregnancy, abortion, and the spread of sexually transmitted disease that are evident byproducts of teen and young adult sexual activity. Sexual trends among teens are not stable over time. After the 1970's, teens had progressively more sexual partners and initiated sexual activity at a younger age than in previous years (Cooksey et al., 1996). Recently, however, teen pregnancy rates have been declining. This trend can be partially attributed to increases in contraceptive use. Recent general decreases in occurrence of sexual activity may also play a role in curtailing pregnancy rates among teens (Bennet & Assefi, 2005). These statistics that make teen and young adult sexuality an important national mental and physical health concern fuel the debate over the benefits and drawbacks of differing forms of sexual education including abstinence-only, "safe sex"/contraceptive teaching only, and abstinence plus campaigns (a combination of the two that promotes abstinence while informing participants of contraceptive issues as well). Still, the majority of social groups tends to promote either abstinence-only sex education or "safe sex"/contraceptive sex education but not both (Cooksey et al., 1996).

The current study will examine sex guilt in relation to abstinence promotion via self-report questionnaires. It will also examine the relationship between abstinence education and sexual partner relations, abstinence education and sexual satisfaction, as well as abstinence education and contraceptive use, all of which are interrelated in many ways. The questionnaire

contained additional data on religion, parent/caregiver relations, sexual development, etc. that will not be analyzed in the present study. It is hypothesized that promotion of abstinence in formal and informal sex education will positively correlate with sex guilt and negatively correlate with the amount of in-depth and realistic discussions of issues relevant to sexual activity with sexual partners and contraceptive use. All of these associations may have certain negative impacts on emotional and physical well-being.

In the review that follows we will first present studies on the impact of abstinence education and, to some extent, religious education (that is often coupled with abstinence education). The literature on sex guilt will then be reviewed. In the remaining sections, other variables that might be influenced by abstinence education and sex guilt will be discussed.

Abstinence Promotion

Behavioral effects of abstinence promotion

While many factors influence the onset of sexual intercourse in teens (e.g., age at menarche) as well as their contraceptive use, sexual education and upbringing can have a meaningful impact on teen sexual behavior. In the past it has been shown that stressing abstinence alone in formal education (such as under President Ronald Reagan's "Just Say No" campaign) did not have a great influence on postponing the onset of sexual activity, although some more recent abstinence-only promotions have yielded significant results in sexual activity postponement. These more recent studies, however, additionally found that once these teens did become sexually active, they were less likely to use contraception (Cooksey et al., 1996).

In general, it has also been documented throughout the literature that an inverse relationship exists between age at first intercourse and use of contraception. In other words, variables that delay onset of intercourse also lead to decreased contraceptive use and conversely,

variables that lead to contraceptive use also predict younger age of sexual intercourse onset (Cooksey et al., 1996). A good example of this relation is seen in the findings of Bearman and Brückner's (2005) study on virginity pledges (Fortenberry, 2005). The study indicates that teens that made virginity pledges (pledged to remain sexually inactive until marriage) were still likely to engage in sexual activity prior to marriage. Pledgers that became sexually active were less likely to use contraception and were no less at risk for sexually transmitted disease than non-pledgers despite later onset, fewer sexual partners, and sexual relations with less risky partners compared with non-pledging teens.

The onset of sexual behaviors other than coitus is also of concern because sexually transmitted disease can be spread through oral and anal sexual intercourse as well as through vaginal intercourse. Bearman and Brückner suggest that teens and young adults who postpone sexual intercourse compensate for this delay by partaking in other risky sexual practices such as oral and anal sex. The same study also found that abstinence pledgers were less likely to seek care for sexually transmitted disease than non-pledgers (Fortenberry, 2005).

Children raised to believe that sex should be postponed until marriage often develop less sexual knowledge if parents/caregivers or educational institutions do not include information on birth control, sexually transmitted disease, and other risk factors involved in sex as an alternative to abstinence. Formal abstinence-only sex education programs do not provide the entire range of information relevant to sexual activity and that this method of sex "education" is more persuasive than educational (Eisenman, 1994).

Religiosity, marriage, and abstinence promotion

Abstinence promotion often goes hand-in-hand with religion, another factor that has been repeatedly linked to sexual behaviors among teens. Religiosity is related to sexual initiation

patterns and contraceptive patterns as well as the age of marriage (Brewster, Cooksey, Guilkey, & Rindfuss, 1998). In relation to the aforementioned findings regarding abstinence promotion, it is not surprising that women involved in a fundamentalist religious group (e.g. Catholics, Christian fundamentalists, etc.) are more likely to postpone sexual intercourse but less likely to use contraception at the time of first intercourse (Brewster et al., 1998).

Still, overall, it has repeatedly been suggested that young people involved in religious groups are not only less likely to have sexual intercourse before marriage but are also less likely to use drugs and alcohol (Steinman & Zimmerman, 2004).

When considering religious influence, one must also consider the varying degrees of abstinence promotion within a religious organization or family structure as well as the general definition of abstinence and virginity that each holds. For example, the Catholic Church and Orthodox Catholics generally promote complete abstinence before marriage and prohibit the use of contraception beyond natural rhythm and family planning (Brewster et al., 1998). Some more liberal members of the Catholic Church, however, may take a more relaxed approach to this belief. It is also important to determine what sexuality and sexual intercourse mean to each individual. Some individuals may consider oral or anal sexual intercourse in the absence of vaginal intercourse permissible within the limits of virginity while others may consider these practices indicative of a loss of virginity.

With regards to marriage, people who make and keep virginity pledges marry at a younger age than non-pledgers and the 88% of pledgers that do not keep their commitment to virginity before marriage (Fortenberry, 2005). Later marital satisfaction has not been researched, although this topic would be an interesting to explore, especially if the reason for marriage is primarily to gain sexual access to the partner (Fortenberry, 2005).

Sex Guilt

Sex guilt, defined as the expectancy for self-punishment (or inwardly directed emotional or behavioral reprimanding) due to a violation of one's sexual standards of conduct, may be shown in the avoidance of sexual contact or inhibition of behavior as well as in altered thought processes in sexual situations (Mosher & Cross, 1971). It has also been suggested that guilt may be evoked by the violation of parental standards in contrast to the violation of one's personal standards of conduct (Herold & Goodwin, 1979). Many studies have examined the correlation between teen sexual development and behaviors and how these relate to sex guilt, but none has looked at sex education methods and its relationship to this phenomenon. In the present study, sex education is referred to informally (the ways children are raised by their parents or other caregivers to view sexuality throughout their lifespan and the subsequent sexual scripts they are expected to live by) and formally (the ways educational institutions teach children and teens about sexuality over specific, relatively short time intervals).

Correlates of sex guilt

It has been documented that discomfort with sexuality and sexual dissatisfaction (psychological and physiological) are correlated with increased guilt at the time of first intercourse, increased current and future sex guilt, and an increased likelihood for sexual dysfunction (Moore & Davidson, 1997). This guilt is thought to result from feelings of disappointing others (namely parents) and one's self by breaching one's own value system (Moore & Davidson, 1997). Women and men who feel more sex guilt may feel a lack of control in sexual decision-making that may, in turn, affect safe sex practices such as contraceptive use and responsible communication about sexual activity (Moore & Davidson, 1997).

People's standards for sexual behavior that develop from what they are taught or believe they should not do (prohibitions) and what they are taught or believe they should do (goals), are highly influential on feelings of sexual confidence and self-worth (Moore & Davidson, 1997). While moderate levels of guilt remain a normal part of development, extreme levels of sex guilt may lead to negative consequences. Because sex guilt has an emotional and personality component, it may influence not only perceptions about behavior but also inhibit or aid in the causation of certain sexual behaviors. Guilt therefore influences the continuation of behaviors (more sex guilt leads to a lesser chance of repeating the guilt evoking behavior) and may also have a damaging effect on future sexual satisfaction and function as well as increased sexual acting-out and promiscuity (Moore & Davidson, 1997). Still, the finding that increased sex guilt may inhibit the reoccurrence of the guilt evoking behavior could be seen as positive by some, especially if guilt is seen as a deterrent from sexual activity.

On the other hand, guilt is often a precursor to obsessive and paranoid thinking as well as isolation and rationalization (Moore & Davidson, 1997). While some researches dispute the congruency of shame and guilt, others see them as extremely similar. Shame, that some see as

more closely related to personal identity than guilt, may evoke feelings of dirtiness, defectiveness and weakness and may have an overwhelming effect on the development of one's sexual beliefs, attitudes, and behaviors (Moore & Davidson, 1997). It is important not to confuse guilt and shame with regret. Regret (at least in the absence of the other two aforementioned emotional expressions) has been shown to promote future positive behaviors (Moore & Davidson, 1997).

Moore and Davidson's (1997) study found that women who frequently felt sex guilt were significantly more likely to have had sexual intercourse with a casual dating partner, were more prone to initiate sexual intercourse at a younger age, and were more likely to have had sexual intercourse with more sex partners. Further, their first sexual partner was more likely to have been a casual dating partner, friend, or person they just met and they were more than twice as likely to have been under the influence of alcohol or other mind-altering substances during first intercourse as those women with little or no sex guilt. In addition, women who frequently felt sex guilt were less comfortable with their sexuality and had less sexual satisfaction.

In contrast, women who experienced no sex guilt were the most likely to have given verbal consent for first intercourse rather than implied consent and used contraception at first intercourse more than women who experienced sex guilt, implying that they were more prepared for sexual activity than women who experienced sex guilt. Another study by Mendelsohn and Mosher (1979) found that participants with high sex guilt retained less birth control information and endorsed more sex myths than other participants. These findings may correlate with the previously mentioned abstinence education trends of formal and informal sex education because the promotion of abstinence has also been correlated with a decrease in preparedness for sexual activity at time of first intercourse (exhibited by the tendency to not use contraception, etc.)

(Cooksey et al., 1996; Fortenberry, 2005). However, the findings apparently contrast with abstinence-only trends in the sense that women with higher sex guilt have more sex partners and initiate sexual intercourse at a younger age.

These findings make it unclear, however, which comes first: the unhealthy sexual activity or the sex guilt. Negative sexual attitudes and behaviors may produce feelings of sex guilt or guiltier teens may be more likely to attend to abstinence education teachings. Still, another possibility may be that the emotional strain between normal sexual development and the belief that sexual development is wrong outside of marriage (a belief promoted by many fundamentalist Christians and abstinence-only promoters), may lead to higher levels of sexual guilt that in turn, may produce future negative consequences. Importantly, sex guilt that accompanies conflict and negative sexual experiences before marriage may have a lasting consequence on relationship satisfaction later in marriage (Long, Cate, Fehsenfeld, & Williams, 1996). Still, it is difficult to predict future sexual behavior from sex guilt because while sex guilt has been related to inhibition of behaviors in some people, it has not been related to the inhibition of behaviors in all people (D'Augelli & Cross, 1975).

Factors influencing sex guilt

Cultural norms and family structure may influence the development of sex guilt. This cultural and family differentiation is why the age of onset for sexual activity is important in considering sexual behavior and its relation to guilt. Levels of sex guilt may be influenced by cultural norms surrounding the appropriate age and circumstance to begin sexual activity. For example, one study revealed that people rated premarital sex for adults to be “always wrong” only 30% of the time while premarital sex by 15-16 year-olds was rated “always wrong” 85% of the time (Moore & Davidson, 1997). Cultural norms for gender must also be considered. For

example, male pre-marital sexual activity is generally more accepted in American society than female pre-marital sexual activity, a finding that might explain females' increased likelihood of experiencing sex guilt in comparison to males (Moore & Davidson, 1997). In addition, uncommunicative fathers and mothers as well as overly strict father figures have been linked to increased levels of sex guilt subsequent to first intercourse (Moore & Davidson, 1997).

Religion, along with parental and peer influence, have also been strongly linked to sex guilt in the literature. People with high levels of sex guilt commonly have strong religious scripts and to rate themselves as more religious than those with lower levels of sex guilt (Moore & Davidson, 1997). It is therefore important to consider the healthfulness of certain religious and philosophical teachings about sexuality. Promotion of abstinence-only by parents and educators alike may be negative because it may decrease the perceived risk of sexual activity and increase belief in sexual myths (Fortenberry, 2005). This decrease in understanding of aspects of sexuality and sexual activity occurs because children and teens are less informed about contraception, pregnancy, and sexually transmitted disease.

The main goal of this study was to correlate sex education, particularly abstinence education, with primarily, sex guilt and secondarily, with contraceptive use and sexual partner communication. Multiple studies have compared types of sex education with sexual behaviors, sexual attitudes, religion, etc. but none that I am aware of, have compared sex education with sex guilt. I hypothesized that abstinence education, both informally (the ways children are raised by their parents or other caregivers to view sexuality throughout their lifespan and the subsequent sexual scripts they are expected to live by) and formally (the ways educational institutions teach children and teens about sexuality over specific, relatively short time intervals) throughout the lifespan would correlate with sex guilt, contraceptive use, sexual satisfaction, and sexual partner

communication so that as abstinence education increased, sex guilt would increase and contraceptives use and partner communication would decrease.

In summary, the purpose of this study was to examine via questionnaires the promotion of abstinence sex education and its correlation with sex guilt prior to and following initiation of sexual activity, discussions with sexual partners about sexual activity topics, sexual satisfaction, and contraceptive use.

Method

Participants

Participants were 171 undergraduate students enrolled in either an introductory psychology class or one of two upper-level psychology courses at a large midwestern university. They ranged in age from 18-32 years old ($M=19$) and included 99 females and 68 males. The primary researchers moderated the sessions.

Because of the implications of this research, participation was limited to those students that had never been married ($N=169$). Non-heterosexuals ($N=0$) or those participants with undisclosed sexual orientation ($N=0$) were also to be excluded from the study in order to create a homogenous sample. In addition, two participants were excluded from the analysis because they had not disclosed their gender. Additional data were excluded from analysis due to mistakes in data entry that produced impossible outliers for certain questions, leaving the total number of participants analyzed at 79. The final sample consisted of 11 males and 68 females with a combined mean age of 19. This sizeable decrease in number of participants from our original sample was due to time constraints. It was impossible to re-enter those data values that were not entered correctly in order to restore the magnitude of our sample size.

Procedure

Upon arriving at the lab, participants were given an anonymous questionnaire consisting of 110 closed-form scaled and multiple-choice questions subdivided into nine general categories. These categories included religiosity, familial relations, partner relations, contraception, sexual development, attitudes about first sexual experience, attitudes about current sexual experiences, general attitudes about sex, and sexual education.

Participants were further given the sex guilt sentence completion portion of the Mosher Forced-Choice Inventory that measures sex guilt, hostility guilt, and morality-conscience guilt. The Mosher Incomplete Sentence Test (MIST) (that consists of 50 sentence completion tasks) had initial evidence for discriminant and construct validity when initially established (Mosher, 1961). The sex guilt portion of the MIST has male and female versions and consists of 11 sentence completion inventories (Mosher & Cross, 1971). Examples of sex guilt items from the inventory include:

10. As a child, sex play _____

11. When I have sexual desires _____

The MIST was scored according to the procedures contained in the scoring manual (Mosher, 1961). The omission of answers was pro-rated and given a value of two in accordance with the scoring manual. Inter-rater reliability for the MIST was $r = .88, p < 0.01$ for females and $r = .95, p < 0.01$ for males. To determine the inter-rater reliability, I correlated the scores of the 11 sentence completion tasks of the MIST for five males and five females scored by scorer A with the scores of the 11 sentence completion tasks of the MIST for those same five males and five females as scored by scorer B. Measures of feelings following sexual intercourse were replicated

from Mosher and Cross' (1971) study. Further, sexual experience questions were derived from Brady and Levitt's (1965) Sexual Experience Inventory.

In the present study, religiosity is defined as the cumulative involvement in religious activities including youth groups, church suppers, church attendance, mission trips, etc. (Steinman & Zimmerman, 2004). In addition, questions of formal and informal sex education are contained in the questionnaire. Sex education in the present study is referred to informally (the ways children are raised by their parents/caregivers and religious institutions to view sexuality throughout their lifespan and the subsequent beliefs and sexual scripts they are expected to live by) and formally (the ways educational institutions teach children and teens about sexuality in specific instances).

Questions pertaining to contraceptive use were collapsed across values so that participants indicating more than one form of contraceptive use at first intercourse or presently were assigned the lowest value of contraceptive utilization. For example, if a participant indicated the use of both condoms and withdrawal at first intercourse or presently, he or she was assumed to use withdrawal, the less effective form of contraceptive. In addition, sex education was divided into three categories; abstinence-only sex education, abstinence-plus "safe sex"/contraceptive education, or "safe sex"/contraceptive education only. The category of "other" was not included in the analysis. The significance level for all correlations was set to $p = 0.05$.

Prior to completion of the questionnaire, participants were informed verbally by the experimenter and in writing that the information contained in the questionnaire was confidential and that participation was completely voluntary. Upon completion of the survey, participants were debriefed with details of the experiment's purpose and additional information on available

counseling services via a written debriefing. Some participants received class credit for participating through the university's psychology department.

Results

Two participants who did not disclose their gender and two participants who were married were excluded from the analyses. Again, some participants were also excluded from analyses due to data entry errors that were unable to be corrected in the time allowed. This left 79 total participants including 68 females and 11 males with a mean age of 19 to be statistically analyzed via correlational analyses.

Abstinence education was correlated with measures of sexual behavior, sexual attitudes, and sex guilt in many of the analyses. The measure of abstinence education came from questions indicating choices 1) abstinence only sex education; 2) "safe sex"/ contraceptive teaching only; 3) a combination of both; and three other choices: never been informed, none and other. For the purposes of the analyses I examined only the first three responses, assigning a score of 1 to abstinence only, a score of 2 to a combination of abstinence plus "safe sex", and a score of 3 to "safe sex" only. Thus the lower the score, the more abstinence education one received. I will term this score the "abstinence education score."

Contraceptive use measures were derived from a question asking what type of contraceptive was use at both first intercourse and currently. The answer choice were A) none; B) pill; C) condom; D) withdrawal; E) rhythm/ natural family planning; and F) other. The category of other was not included in analysis. The answer "none" was given a value of 1, the answers "rhythm/natural family planning" and "withdrawal" were assigned the value of 2, and the answers "pill" and "condom" were assigned a value of 3. This created a continuum with

lower values indicating less effective contraceptive use and higher scores indicating more effective contraceptive use. I will term this the “contraception score.”

However, the test had different measures of abstinence education depending on from whom and when the sex education was received. One question asked about informal measures of sex education or sex education taught by parents/caregivers throughout one’s lifetime in an unstructured manner. There were also three formal sex education questions that asked about the type of sex education received by educational institutions in a more structured manner. Here, the sex education type question was separately scored for each of three grade levels: grade (elementary) school, middle school, and high school. Sex education was divided by age/grade in order to detect developmental trends.

Analyses were conducted by correlating a combination of male and female responses to measures of sexual development trends, sexual satisfaction, sex guilt, sexual partner relations, and contraception use with measures indicating type of informal sex education, type of formal sex education in grade school, type of formal sex education in middle school, and type of formal sex education in high school (the “abstinence education score”). Although data analysis did control for participants that may have had multiple types of sex education at differing times throughout their lifespan, it did not control for how multiple types of sex education at different times throughout life may influence one’s overall sexual attitudes, sexual behaviors, and sex guilt.

Analyses were also conducted to determine the direction and significance of the MIST’s correlation with other measures of guilt. A final analysis determined what measures differed between sexes.

In the presentation of results that follow I will first treat informal, that is, parent/caregiver taught sex education, correlating the measure of abstinence education to: A) sexual development, i.e., sex behavior; B) sex guilt; C) Contraception; and D) partner relations. Then I will proceed to formal education.

Informal sex education

Informal sex education correlated significantly with some measures of sexual development, sex guilt, and contraception. Informal sex education did not significantly correlate with any partner relations measures or sexual satisfaction measures.

Sexual development. Abstinence education by means of informal sex education significantly correlated with number of sexual partners one has received oral sex from to date ($r = .24, p = 0.02$). This correlation indicated that more abstinence education (i.e., the lower the “abstinence education score”), the lower the number of sexual partners that one has received oral sex from to date. There appeared to be no correlation, however, among the measure of abstinence education and the numbers of partners one has given oral sex to to date nor any other sexual practices.

Sex guilt. Informal abstinence education (lower abstinence education scores) significantly correlated with guilt feelings indicated by the mean MIST score ($r = -.21, p = 0.04$). Thus, the more informal abstinence education (by parents/caregivers), the higher the sex guilt. In addition, the current belief that sex before marriage is sinful ($r = -.41, p < 0.01$) and wrong ($r = -.30, p < 0.01$) correlated with informal abstinence sex education. Informal abstinence education taught by parents/caregivers also correlated with the belief prior to first intercourse, that sex before marriage is wrong ($r = -.33, p < 0.01$). Hence, the more informal abstinence education, the

stronger the belief that sex before marriage is both sinful and wrong. Notice that this correlation does not differentiate between virgins and non-virgins.

Interestingly, informal abstinence education was correlated with the belief that sex before marriage is wrong for people other than oneself as well ($r = -.24, p = 0.05$). This means that the more informal abstinence one is taught by parents/caregivers throughout the lifespan, the greater the belief that sex before marriage is wrong for people other than oneself. Because this correlation is weaker than the belief that sex before marriage is wrong for oneself, it may reveal an acceptance of others' behaviors independent of moral self-beliefs.

Contraception. A significant correlation was found between informal abstinence promotion and effective contraceptive use at first intercourse ($r = .37, p = 0.02$). This correlation reveals that the more informal abstinence education one receives in the home, the less likely one is to use effective contraception at first intercourse, i.e., the lower the "contraception score." Informal abstinence education also correlated with percentage of time that all or any form of contraception was used at time of first intercourse ($r = .33, p = 0.04$). Hence, the more abstinence education taught by parents/caretakers, the less percentage of time contraception was used at first intercourse.

Drug and alcohol use during current intercourse correlated with informal abstinence sex education as well ($r = .34, p = 0.04$). This correlation indicated that the more informal abstinence education, the more likely one was to use drugs, alcohol, or other mind-altering substances during sexual intercourse currently. This correlation is important because drug and alcohol use during sexual intercourse could predict greater chances of misusing contraception.

Formal sex education received in grade school

Formal sex education in grade school was significantly correlated with some measures of sexual development, sex guilt, and partner relations but not with contraception measures or sexual satisfaction measures.

Sexual development. Age at one's first experience with petting over ($r = .23, p = 0.03$) and beneath ($r = .26, p = 0.01$) clothes correlated significantly with formal abstinence education in grade school so that the more abstinence education one received in a structured educational situation in grade school, the younger they were when they began petting. Formal abstinence education in grade school also correlated with the number of partners one has given oral sex to to date ($r = .21, p = 0.05$) as well as a decrease in the number of sexual intercourse partners to date ($r = .21, p = 0.05$). Therefore, the more formal abstinence education in grade school, the less number of partners one is likely to have given oral sex to or had sexual intercourse with to date.

Sex guilt. Formal abstinence education taught by an educational institution in grade school also correlated with sex guilt as indicated by the mean MIST score ($r = -.21, p = 0.05$) so that the more formal abstinence education in grade school, i.e., the lower the "abstinence education score", the higher the guilt score as indicated by the Mosher Incomplete Sentence Test. Expected feelings of shame at first intercourse correlated with formal abstinence education in grade school as well ($r = -.41, p < 0.01$). Hence, the more formal abstinence education one receives at school during the grade school/ elementary school year, the more one expects to feel shame at first intercourse. In addition, formal abstinence education in grade school correlated with feelings of guilt and shame during or after first intercourse ($r = -.28, p = 0.03$) so that the more abstinence education in grade school or the lower the "abstinence education score", the more shame and guilt one felt during or after first intercourse.

Recurring thoughts about one's loss of virginity significantly correlated with abstinence education in grade school by teachers and educators as well ($r = -.33, p < 0.01$). Hence, the more formal sex education in grade school, the more one thinks about the loss of their virginity. Further, formal abstinence education in grade school correlated with belief that sex before marriage is a severe sin ($r = -.24, p = 0.02$) as well as belief that sex before marriage is wrong ($r = -.28, p < 0.01$). Therefore, the more abstinence education in grade school via an educational institution, the greater severity one assigns to the notion that sex before marriage is sinful and wrong.

Partner relations. At first intercourse, communication with one's sexual partner about options if pregnancy would occur significantly correlated with formal abstinence education provided by an educational institution in a structured manner in grade school ($r = -.29, p = 0.02$). Hence, communication about pregnancy options with one's sexual partner increased with more abstinence education. There was no correlation, however, between communication about contraceptive use with one's sexual partner and formal sex education.

Formal sex education received in middle school

Formal sex education in middle school correlated significantly with measures relating to sexual development, sex guilt, and contraception. There were no significant correlations between formal sex education in middle school and measures of sexual partner relations or measures of sexual satisfaction.

Sexual development. Formal abstinence education provided by teachers/educators in middle school correlated with age of menarche/puberty ($r = -.19, p = 0.05$) so that the more abstinence education in middle school, i.e., the lower the "abstinence education score", the later the onset of puberty/menarche. This correlation could be a chance correlation or possibly related

to biological functioning within the body that speed the onset of puberty with early introduction to sexual processes in social and educational settings. The reason for this relationship is unclear.

Sex guilt. Formal abstinence education in middle school correlated significantly with the level of guilt and shame one felt during and after first intercourse ($r = -.26, p = 0.03$). Hence, the more abstinence education provided in a structured way in middle school, the more guilt and shame one felt during and after first intercourse. Formal sex education in grade school also correlated with the belief in the wrongness of sex before marriage ($r = -.20, p = 0.05$) so that the more formal sex education in middle school (the lower the “abstinence education score”), the stronger the belief that sex before marriage is wrong. This may be because abstinence education, especially abstinence education with a foundation in religious teaching, generally teaches that sex before marriage is wrong or sinful.

Contraception. Further, formal abstinence education in middle school correlated with drug, alcohol, or other mind-altering substance use during first intercourse ($r = .36, p = 0.03$). So, the more formal abstinence education received from a formal educational institution in middle school, the less drug, alcohol, and other substance use was reported during first intercourse.

Formal sex education received in high school

Significant correlations among some measures of guilt and contraception and formal sex education in high school existed. There were no significant correlations among measures of sexual development, sexual satisfaction, or sexual partner relations.

Guilt. Feelings of shame ($r = .21, p = 0.05$) and guilt ($r = .25, p = 0.04$) during and after first intercourse correlated with formal abstinence education in high school. So, the more formal abstinence education in high school, the less feelings of shame and guilt during and after first intercourse.

Contraception. Formal abstinence promotion in high school significantly correlated with marijuana use during first intercourse ($r = -.37, p = 0.03$). Hence, the more formal abstinence education received in high school from an educational institution in some structured way, the more likely one was to be under the influence of marijuana during first intercourse.

Correlation among MIST and other guilt measures

The MIST mean scores correlated significantly with some alternative measures of guilt but did not significantly correlate with others. Higher MIST mean scores positively correlated with levels of guilt at first intercourse ($r = .22, p = 0.04$), belief that sex before marriage is a severe sin ($r_{\text{sin}} = .55, p < 0.01$) and is wrong currently ($r = .48, p < 0.01$) and prior to first intercourse ($r = .33, p < 0.01$), and finally, belief that sex before marriage is wrong for people other than oneself ($r = .29, p < 0.01$). MIST mean scores negatively correlated with comfort with sexual activity at time of first intercourse ($r = -.24, p = 0.03$).

The MIST mean scores were not significantly correlated with any alternative guilt measures including expected feelings of guilt or shame prior to first intercourse, and indicated feelings of guilt and shame during and after first intercourse. The fact that the MIST correlated well with some alternative measures of guilt but not all alternative measures of guilt allows for some indication of reliability of the MIST.

Variables differing by sex

Some measures of sexual development, guilt, sexual partner relations, sexual satisfaction, and contraception differ according to sex while other measures within these categories do not. In the correlational analyses that follow males were assigned the value 1 and females were assigned the value 2. In this sense, the males received a lower score and females received a higher score and the direction of the correlations that were found determined whether males or females

experienced specific feelings or participated in specific behaviors differently. The measures of sexual development, sex guilt, partner relations, sexual satisfaction, and contraception in this study generally correlated more with being female than male, supporting past research which has stated that sex guilt is correlated significantly with sexual behaviors more so for females than for males (Sack, Keller & Hinkle, 1984).

Sexual development. Age at first oral and vaginal sex correlated with sex so that females have their first experience with oral sex ($r = .31, p < 0.01$) and vaginal sex ($r = .34, p < 0.01$) at a later age than males. Number of oral sex partners was also correlated with sex so that females tend to give oral sex to a greater number of partners in high school than their male counterparts ($r = .19, p = 0.03$). In addition, a correlation was found between number of oral sex partners and number of other sexual act partners to date and sex, showing that females have more sexual partners that they have received oral sex from to date (i.e., total oral sexual partners in lifetime) ($r = .20, p = 0.02$) and number of partners that they have engaged in all or any forms of advanced sexual contact with to this date, including oral sex and heavy petting beneath the clothes ($r = .19, p < 0.01$).

Surprisingly, age of menarche/puberty was correlated with sex so that females, at least from this sample, began menarche or puberty at a later age than males ($r = .37, p < 0.01$). This could be due to the skewed sample size that contained many more females than males or due to greater male uncertainty of the exact age they began puberty.

Sex guilt. A correlation was found between belief that sex is wrong and sex indicating that females were more likely to believe that sex before marriage is wrong currently ($r = .33, p = 0.03$) and prior to the time of their first intercourse ($r = .31, p = 0.04$).

Partner relations. Relationship status with one's first and current sexual partner was correlated with sex so that females were more likely than males to have a higher/more secure relationship status with their first sexual partner ($r = .42, p < 0.01$) but a lesser/ less secure relationship status with their current sexual partner ($r = -.39, p < 0.01$) than males. Another correlation was found between sex and amount of planning of first intercourse indicating that females planned their first intercourse more than males ($r = -.40, p < 0.01$). A final correlation in this category was found between communication with current partners about contraception and pregnancy so that females have more communication with their current sexual partners about contraceptive use ($r = .41, p < 0.01$) and about options if pregnancy occurs ($r = .36, p < 0.01$).

Sexual satisfaction. Enjoyment of current sexual experiences correlated with sex so that females were more likely to enjoy their current sexual intercourse experience than males ($r = .54, p < 0.01$).

Contraception. Perceived availability of various forms of contraception at first intercourse correlated with sex so that males perceived various forms of contraception as more readily available than females at time of first intercourse ($r = -.30, p = 0.05$).

Discussion

As hypothesized, amount of abstinence education one has received informally and formally throughout one's lifespan was positively correlated with some degree of sex guilt, and negatively correlated with contraceptive use.

Analyses did not, however, support our hypothesis that communication with one's sexual partner about pregnancy would decrease in correlation to increases in abstinence education. In fact, the opposite result was found, indicating that the more abstinence promotion in grade school, the more one talks to partners about pregnancy. A nearly significant negative correlation

was found between abstinence education and communication with one's sexual partner about contraception that may add an interesting dimension to this finding ($r = .22, p = 0.08$).

The hypothesis that sexual satisfaction would decrease with formal and informal abstinence education was also not supported. People may separate feelings of guilt and shame that predictably would influence sexual satisfaction, from sexual satisfaction. Also, participants may have interpreted questions pertaining to sexual satisfaction as strictly physical satisfaction rather than emotional satisfaction as well. Physical satisfaction would presumably be less related to sexual attitudes. In future studies, the discrepancy between physical and emotional satisfaction should be accounted for.

Informal abstinence education (that taught by parents/caretakers throughout the lifespan) and formal abstinence education in grade school negatively correlated with some sexual behavior/sexual development trends including number of oral sex and vaginal sex partners. These correlations were not present when sexual behavior was compared specifically to formal sex education in middle school or high school. These findings lead us to believe that informal and formal abstinence education at a young age may predict some beneficial delays in sexual activity. Formal abstinence education for older age groups may lose its effectiveness.

On the other hand, age at first petting over and beneath clothes negatively correlated with formal abstinence education in grade school. These trends are interesting to compare to the trends previously mentioned because petting above and beneath clothes is seen as a less risky sexual behavior than oral sex and sexual intercourse. This finding suggests that abstinence promotion in grade school deters children and teens from "risky" sexual involvement while children and teens compensate for this deterrence by engaging in "less risky" sexual behaviors at a younger age. No specific hypotheses were presented concerning sexual development trends but

the findings do fit loosely with past research regarding these trends (Cooksey et al., 1996; Fortenberry, 2005).

In addition, formal abstinence education formally (taught by parents/caretakers) and informally (taught by educational institutions for specific time periods), especially at younger ages, positively correlated with multiple measures of guilt including the MIST mean scores and measures of expected feelings of guilt at first intercourse. Therefore as abstinence education increases, sex guilt increases. In addition, formal abstinence promotion in grade school predicts a large increase in thinking about the loss of one's virginity, an obsessive thought pattern that could potentially encourage more feelings of guilt.

With increases in high school formal abstinence education, however, the correlation between abstinence education and feelings of guilt is negative, predicting less feeling of guilt and shame during and after first sexual intercourse. This finding shows a developmental trend that suggests that receiving more abstinence education at younger ages predicts higher feelings of guilt and shame during and after first intercourse while receiving more abstinence education at later stages in life predicts lower feelings of guilt and shame during and after first intercourse. This developmental trend fits well with other aforementioned developmental trends that more strongly predict increased guilt when abstinence promotion is encountered at a younger age than an older age.

Not surprisingly, abstinence education informally and formally positively correlated with the belief that sex before marriage is either a severe sin or very wrong so that the more abstinence education, the more severely one rates the sinfulness and wrongfulness of engaging in sexual intercourse before marriage. In reference to past research, this belief could be harmful if it produced high levels of guilt once sexual activity was initiated but may also be beneficial in

detering teens and young adults from sexual activity. Interestingly, informal abstinence education also positively correlated with the belief that sex before marriage is wrong for persons other than oneself. This belief directed at other people's behavior was, however, not as strong as one's self-beliefs. This belief is worthy of note because it shows that people tend to have somewhat different moral expectations for themselves than for other people.

When looking at partner relations and its correlation with sex education, formal abstinence sex education in grade school positively correlated with one's amount of communication with one's sexual partner about options if pregnancy occurred. Communication with one's sexual partner about contraception on the other hand was not correlated with abstinence education. A nearly significant correlation did exist however that suggests that those that receive more abstinence education may be less likely to communicate with their partners about contraception than those that receive other forms of sex education more prominently. Although not significant, this correlation is interesting nevertheless because it suggests that the greater abstinence promotion, at least at a young age, the more one is likely to talk with a sex partner about pregnancy but not about necessarily contraception.

This trend may be evident possibly because the occurrence of a pregnancy would allow others such as parents and church officials to determine sexual activity. This exposure would presumably be more devastating to those whom are taught abstinence and therefore preparation for this occurrence would be a forefront concern. People may be less likely to talk to their sexual partner about contraceptive use in this situation than those that receive less abstinence education and more "safe sex"/contraceptive education because they have not been fully informed about the importance of using contraception for purposes other than pregnancy prevention including for prevention of sexually transmitted disease.

Another reason that more abstinence education could predict greater communication about pregnancy is because those taught abstinence might have stronger anti-abortion beliefs than those taught “safe sex” education or even a combination of both. This may prompt them to communicate more about unwanted pregnancy and abortion issues in general.

No correlation existed among sex education directed at older age groups and communication with one’s sexual partner about pregnancy or contraception issues however. Although no relationship was present at later ages, the correlation between education and partner communication in earlier age groups is extremely important especially as teens and even pre-teens start engaging in sexual activity at younger ages. It becomes important for teens and young adults not only to talk to their partners about pregnancy but also about contraception in order to prevent pregnancy and just as importantly, especially from a national health standpoint, the spread of sexually transmitted disease.

Other trends are evident regarding contraceptive use in relation to sex education types. Informal sex education relates to contraceptive trends more than any form of formal sex education. Informal abstinence negatively correlated with many contraceptive trends including effective use of contraception at first intercourse and percentage of time that contraception was used while engaging in sexual intercourse with one’s first sexual partner. Informal abstinence education negatively correlated with drug or alcohol use during current sexual intercourse. Still, no correlation existed between substance use at time of first intercourse and informal abstinence education.

This trend appears to be opposite, however, if one was taught more abstinence education in middle school or high school. In these ages, formal abstinence education in middle school and high school (taught by an educational institution in a structured way during that time span) was

positively correlated with substance use at first intercourse. It is unclear why this trend exists but it is nevertheless interesting to examine substance use in relation to contraception because substance use may make people more likely to misuse or make mistakes in the application of effective use of contraception. It is also interesting to look at substance use in relation to guilt because it could be that substance use numbs guilt feelings while engaging in an activity that one feels is wrong or is uncomfortable with while not under the influence. Further analyses would need to be conducted in order to determine this relationship.

Ultimately, a developmental trend did seem to exist that suggests that abstinence education at younger ages predicts more negative sexual attitudes and behaviors and more severe feelings of sex guilt than abstinence education at older ages. This trend is important because younger children and teens are more likely to be taught abstinence education than older teens and young adults. This tendency seems practical especially if parents/guardians and educators are assuming that younger children and teens have not begun to engage in sexual activities. This misunderstanding, though, could prove very detrimental to children's and teens' sexual development and safety.

Another reason why this trend may have been evident in this study is because of the drastic differences in the number of participants receiving abstinence education formally or informally at younger ages and those that receive any form of sex education (but especially abstinence education) at an older age. Because many more participants were taught abstinence by parents/guardians and by educational institutions in grade school than at later ages, the statistical significance of some correlations was weak due to smaller sample sizes that lower the correlational power. This discrepancy could discredit any initial discoveries of a developmental trend and therefore needs to be accounted for in future studies.

Because abstinence education in general predicts more feelings of sex guilt as well as an increase in negative behaviors related to contraceptive use, it is important to look at the value of abstinence as well as its downfalls. As mentioned, abstinence education generally has its roots in religious doctrines. In Haffner's (1997) review of religious teachings on sexuality, she claims, "There is an urgent need for a new sexual theology to help people recognize the value of sexuality.... [If one looks closely at the Bible they will find that it actually] teaches that sexuality is a central part of being human, that bodies are good, that pleasure is good, and that men and women experience a healthy sexual desire for one another." She further claims, "[There should be] no need for justification [of sexual activity] from procreative possibility." If children and teens are being taught that sexuality is wrong or something to feel guilty about, future comfort with the physical and emotional aspects of one's sexuality may be at risk.

The present study went beyond past research by looking at sex education types directly and how these types of education relate to sex guilt and specific sexual behaviors and attitudes. It also furthers understanding of developmental trends that may be evident across ranges of sex education teaching. Further research needs to examine this relationship in more detail, possibly studying teens and young adults directly instead of relying on a retrospective questionnaire in which people may not remember exactly the type of sex education they received, the age at first intercourse, the number of partners, exactly how they felt at first intercourse, etc. The fact that the present study did rely on a retrospective survey was a limitation of the study.

A heated political, religious, medical, and educational debate exists over which form of sex education is most beneficial for children, teens, and young adults. Because both negative and positive aspects of abstinence education were discovered, it is important to seriously consider the integration of abstinence education and "safe sex"/contraceptive education into one educational

program. It is believed by some that exposing children and teens to information on contraception and other “safe sex” practices encourages them to engage in sexual activity at a younger age.

Although to some extent this may be a valid argument, it has repeatedly been reported that despite later age of onset and even fewer sexual partners as well as involvement with less risky sexual partners, these teens and young adults are still just as likely to contract sexually transmitted disease as those teens with earlier sexual activity onset and more sexual partners. These teens are also less likely to use contraception once sexual activity is initiated (Cooksey et al., 1996; Fortenberry, 2005).

Pregnancy and contraction of STDs are the major concrete consequences of teen sexual involvement. If children, teens, and young adults see sex as negative, wrong, or sinful, they may be less likely to handle sexual activity in a responsible and safe way (i.e., use contraception effectively, etc.). The safety of children, teens, and young adults should be the primary concern in spite of one’s political, medical, religious, or educational point of reference.

Sex guilt was the most interesting and most consistent variable correlated with sex education types in the present study. This correlation is interesting because it has never been linked to sex education previously. Although sex guilt may be positive in some respects, especially if it deters children, teens, and young adults from engaging in sexual activity at a young age or at least limits their amount of sexual activity or number of sexual partners, guilt can also be viewed negatively.

It is possible that sex guilt may be beneficial before sexual activity is initiated (mainly serving as a deterrent) and may become harmful after sexual activity is initiated. In addition, it has been reported that sex guilt may contribute to feeling a lack of control in sexual decision-making (Moore & Davidson, 1997). It is important to consider this effect because control and

responsibility are vital aspects of safe sexual involvement, especially for teens and young adults. In the present study, thoughts about one's loss of virginity were also positively correlated with abstinence education. This relates to previous research findings that guilt is often a precursor to obsessive and paranoid thinking as well as isolation and rationalization (Moore & Davidson, 1997). Again, abstinence education in the absence of contraceptive and "safe sex" education by parents/caregivers and educators alike may be negative because it may decrease the perceived risk of sexual activity, decrease the preparedness for sexual involvement, and increase belief in sexual myths (Fortenberry, 2005).

It is also worth mentioning again that in the present study, a negative correlation was found between formal abstinence education in high school specifically (that taught by an educational institution in a structured manner during the high school years) and feelings of shame and guilt at the time of first intercourse so that the more abstinence education, the less feelings of shame and guilt at first intercourse. Recall that this was opposite of the trends seen in correlation with abstinence education at younger ages which correlated positively with feelings of shame and guilt at first intercourse so that the more abstinence education received at younger ages, the more likely one was to feel shame and guilt at first intercourse. This is interesting because these opposing findings may suggest that those that received formal abstinence education in high school (which was a very small percentage of the people) may delay sexual intercourse onset long enough that they are actually more prepared and more comfortable with sexual activity and therefore do not feel ashamed or guilty. This however, is unclear from the data presented and needs to be examined in more depth in future studies on this topic.

Abstinence-plus campaigns therefore may be the most sensible option for educating children, teens, and young adults about the risks involved in beginning sexual activity and the

resulting precautions that are necessary for ensuring their safety. This method could provide the benefits of abstinence-only sex education including the delay of sexual onset, reduced number of sexual partners, and more partner communication about pregnancy while also providing the benefits of contraceptive/"safe sex" education including increased contraceptive use and lower sex guilt. Further research on the topic of sex education will hopefully reveal additional strengths and weaknesses pertaining to differing forms of sex education in a more definitive manner

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